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nent blood-formative organs. He looks upon the blood corpuscle as a gland-cell destined to promote within itself the transformation, into other elements, of certain materials derived from the liquor sanguinis, and when matured to give back directly "to the liquor sanguinis, by its final dissolution, its secretion, consisting of its own body."

SUBSTITUTE FOR THE CAMERA LUCIDA.—Mr. W. Kesteven, Jr., substitutes the thinnest possible cover-glass for the tint-glass commonly used for camera lucida purposes. He does not appear to suffer from the difficulty of too great transparency which has deterred others from its use.

NOTES.

Two months ago, in announcing the provision made by the Legislature of Kentucky for a geological survey, we asked whether the time were not coming for a careful geological and zoological survey of Massachusetts. Since then, active measures have been taken to secure this result. The American Academy of Arts and Sciences (the oldest and highest scientific body in the state) has petitioned the Legislature, and a memorial, referred at first to the Committee on Education, has now been placed in the hands of the Board of Education with instructions to investigate the matter and report at the assembling of the next legislature. The memorial of the Academy, before its adoption, was thoroughly considered by a special committee, consisting of the President (Hon. Charles Francis Adams) Professors William B. Rogers and T. Sterry Hunt, and Messrs. George B. Emerson, Alex. Agassiz, S. H. Scudder and R. H. Dana, Jr., so that we can have no doubt of a favorable report from the Board of Education.

The publications of such a survey, says the Academy, in its memorial, should embrace a detailed topographical map, on a scale of about an inch to a mile, maps colored to show the distribution of rock-formations and economic minerals, with charts on a larger scale of particular localities, having special interest or importance; sections and explanatory text to accompany these maps, embracing descriptions and analyses of the rocks and ores and of the waters, and investigations into the strength and durability of our building-stones; full descriptions and truthful illustrations of the animals and plants, including their natural history, transformations and relations to man and his requirements.

The memorial goes on to show that in carrying out the survey the State could take advantage of the provision made by Congress, by which any State undertaking a topographical survey of its territory is empowered to call upon the United States Coast Survey to make the preliminary triangulations, so that the State is at once relieved of a very important part of the work to be done. In making these triangulations, the Coast Survey utilizes the experience of local professors and their students; and in the same way, it would be entirely feasible, in following the trigonometrical with the topographical survey, to employ the services, in different parts of the State, of the same persons. The survey would thus become at once a most valuable auxiliary to scientific education, by giving the younger men in our schools of science and technology an opportunity to put their studies to practical use.

The Academy places in a conspicuous light the educational advantages which would accrue from such an undertaking and urges that the reports under the proposed survey should, as far as possible, be prepared with special reference to an intelligent use by the people; and that, instead of being distributed gratuitously, they should be sold through the ordinary agencies at a slight advance upon the cost, so as to enable the State to pay the authors from the proceeds of the sales, and to recover the greater part of its original outlay, without placing the books beyond the reach of persons of moderate means. Such a mode of publication would unquestionably be the most economical for the State, and the most certain to bring the books directly and naturally into the hands of those who would value and use them.

These suggestions are timely and important, and if faithfully followed, would reduce by one-half the ordinary expenses of such a survey. One or two further suggestions, however, are needed; that the Legislature should at the start ensure the continuance of the survey for a term of years, ten or fifteen at least; and that the appointments should be removed from the domain of politics or of personal preferment. Why should not the nominating power be intrusted to such a body as the American Academy? This measure would give confidence in the success of the survey.

We bespeak from our Massachusetts readers all the aid they can render in this matter. If the movement fail now, it may be years before we can hope to see it urged again with the least chance of

success. Educational institutions and associations should bear their testimony to its importance, and every one interested in the cause of education, every lover of nature should make this a matter of public notoriety and public interest, and obtain for it the hearty coöperation of members of the coming Legislature. We shall revert again to this topic and keep our readers acquainted with any new development.

NECESSITY of a Common Language in Natural Science. "It may be asked why I, in my catalogue of arachnological literature, have not included any other works than those written in Latin or in the living languages of Teutonic or Roman origin. The reason is, not that I undervalue what may have been written in other languages (which I am very far from doing), but simply that I am unable to understand even the titles of works written in, for example, Russian, Polish, Bohemian, Finnish, or Magyar; and thus I have only by accident come to learn that a couple of works in these languages treat on arachnological subjects.

"It may in general be taken for granted that a person of liberal education has some acquaintance with Latin, and knows at least one Teutonic and one Romanic language; and when this is the case, he can, without any great waste of time, learn so much of the others as to be able, with the help of a grammar and a dictionary, to understand the purely descriptive works within his own department that are written in those languages. This is probably the reason why, in determining questions of priority, it is customary to attribute as much importance to works written in, for instance, Portuguese or Swedish as to those written in any of the more generally studied languages. But it is, of course, impossible to assign the same weight to *all* languages. No naturalist can have time to acquire the knowledge of all the *European* languages which have already a scientific literature to show; and the languages of this part of the world will assuredly not long continue to keep exclusive possession of that territory. It would seem, therefore, to be absolutely necessary, even for the future, in the selection of the works of which a zoologist or botanist ought to be expected to possess a knowledge, and which, in the determination of questions of priority, ought to be taken into account, to confine one's self to those which are written in the living languages of Teutonic or Roman origin and in Latin.

"The want of a *common* scientific language will unquestionably become gradually more and more felt; and as a return to Latin can hardly be expected, it is not improbable that *English* may sometime or other acquire that rank, not only because that language is far more widely diffused over every part of the earth than any other culture-language, and that already two of the greatest nations publish in it the results of their scientific labors, but because English, on account of its simple grammar and as combining in nearly the same degree Teutonic and Romanic elements, is by most Europeans more easily acquired than any other language."—*Remarks on Synonymes of European Spiders*, 1873, p. 583 (a work written entirely in elegant idiomatic English).—By Prof. T. THORELL, of Upsala.—*Annals and Mag. Nat. History*.

We may add that De Candolle, the Swiss botanist, has lately advocated the use of the English language as a common scientific language, and in this connection we quote the remarks of Mr. G. O. Sars, the well known zoologist of Norway, in the introduction to his elaborate work on animal life at great depths off the Norwegian coast.

"That I have chosen a foreign language instead of my mother tongue, as the medium of this communication, is a circumstance which I think does not call for any justification on my part. Science is cosmopolitan, and therefore requires a generally intelligible language. Our language has not reached this point yet; and to facilitate the reading of this little work, I have adopted one of the great universal languages. I have preferred the English language, as well because it has most affinity with our own, and consequently affords greater facility for rendering the Norwegian expressions, as in acknowledgment of the great progress which zoological science has made in recent times, through the medium of the English languages."

THE present indications are that the meeting of the American Association for the Advancement of Science, at Hartford, in August, will be one of unusual interest and will be largely attended. The citizens of Hartford have commenced the work of making arrangements for the meeting with great enthusiasm, and the well-known liberality and wealth of the city make it certain that the local arrangements will be made as perfect as possible. As favorable to the success of the meeting we notice a new feature in the local sub-committees, that of the appointment of a number of ladies as a Committee of Reception. The circular of the Per-

manent Secretary of the Association has been issued, and that of the Local Committee will soon follow. When the latter is published we shall give a summary of the local arrangements. The circular of the Permanent Secretary, as well as the necessary blanks for the entry of papers to be read at the meeting, and for application for membership, can be obtained by addressing him. There are hundreds of persons in the country who, though deeply interested in its object, are not yet members of the Association. Many would join the Association and aid in its work if they were more fully acquainted with its rules and character, and such we recommend to apply to the Permanent Secretary for further information. Among the business matters to be attended to at the meeting, will be the acceptance of the Act of Incorporation giving a legal existence to the Association; while the new Constitution proposed at Portland will be acted upon. We learn that the Portland volume of Proceedings is nearly printed, and that it will contain many of the most important papers read at the meeting. A number of members whose papers were accepted for publication have not sent in their manuscripts, notwithstanding the very long time allowed them to do so. We also learn that the Committee on the donation by Mrs. Thompson have accepted and commenced printing a monograph on "Fossil Butterflies," by Mr. Scudder. This work, which will be an exhaustive treatise on the subject, fully illustrated, and of quarto size, will form the first of the special memoirs of the Association, and in every way will be worthy of the liberal patroness. The following are the officers elected for the Hartford meeting which will open on August 12th: — *President*, Dr. J. L. LE CONTE, of Philadelphia, Pa.; *Vice President*, Prof. C. S. LYMAN, of New Haven, Conn.; *Permanent Secretary*, Mr. F. W. PUTNAM, of Salem, Mass.; *General Secretary*, Dr. A. C. HAMLIN, of Bangor, Me.; *Treasurer*, Mr. WILLIAM S. VAUX, of Philadelphia, Pa. *Standing Committee, ex officio*, Ex President, Prof. JOSEPH LOVERING, of Cambridge, Mass.; Ex Vice President, Mr. A. H. WORTHEN, of Springfield, Ill.; Ex General Secretary, Prof. C. A. WHITE, of Brunswick, Me.; President, Vice President, Permanent Secretary, General Secretary and Treasurer of the Hartford meeting. *Local Committee*: — *Chairman*, Hon. H. C. ROBINSON; *Vice Chairmen*, Prof. JOHN BROCKLESBY, J. M. ALLEN, Esq.; *Secretary*, Rev. W. L. GAGE; *Treasurer*, GEO. P. BISSELL, Esq., and one hundred and one other citizens.

THE FRENCH ASSOCIATION for the Advancement of Science.—We copy the following from an extended notice in “Nature,” as showing the high stand the French Association has taken, and the cordial support it has received, and also as containing suggestions that the American Association might, with proper modifications, follow to great advantage:—

“The first volume of the yet young French Society’s Proceedings does it infinite credit. It is a handsome, beautifully printed volume of 1,330 pages, containing upwards of 200 papers, addresses and lectures on a wide variety of subjects, connected with science, pure or applied. The volume is also well illustrated, some of the plates appended being coloured, a feature which we think the British Association would do well to imitate in its ‘Proceedings.’

The French Association, as our readers no doubt know, made a very auspicious start, the number of members amounting to somewhere about 800. There are two classes of members—1st, *membres fondateurs*, who subscribe one or more shares of the capital of the Association, a share amounting to 500 francs; there are about 250 members of this class, some of whom have subscribed several shares, among the latter being a considerable number of railway and other public companies; 2nd, ordinary members, paying an annual subscription of 20 francs, or a life-subscription of 200 francs; the names of about 50 life-members are in this volume. After an existence of scarcely three months, the Association possessed a capital of nearly 140,000 francs, and an annual revenue of more than 16,000 francs.

The French Association is modelled pretty closely after the older British one, its aim being, according to the rules, ‘to promote by every means in its power the progress and diffusion of the sciences from the double point of view of the perfection of pure theory and of the development of their practical applications.’ These ends it proposes to accomplish by means of meetings, lectures, publications, and donations of instruments or money to persons engaged in scientific researches. It appeals for help to all those ‘who believe that the cultivation of science is necessary to the greatness and the prosperity of the country.’

The Association is divided into four groups, and each group into several sections; the groups are—1. The Mathematical Sciences; 2. Physical and Chemical Sciences; 3. Natural Sciences; 4. Economic Sciences. The French Association devotes more attention to the practical application of scientific principles than does the British one; the 1st group, for example, including Sections of Navigation and of Civil and Military Engineering: the 3d group including the Medical Sciences, and the 4th group Agriculture.”

A SOCIETY has lately been organized in Detroit, Michigan, designated the Detroit Scientific Association, and having for its object the advancement of scientific knowledge in all its branches. At a meeting held on April 16, 1874, the regular election of officers for the ensuing term took place, with the following result: *President*, Dr. Geo. P. Andrews; *1st Vice President*, E. C. Skinner; *2d Vice President*, Prof. J. M. B. Sill; *Cor. Secretary*, Dr. A. B. Lyons; *Recorder and Cabinet Keeper*, E. Wolfenden; *Treasurer*, C. C. Cadman; *Librarian*, J. C. Holmes; *Curators*, D. Farrand Henry, Fredrick Stearns, Henry Gillman.

Commencing with a list of over thirty charter members, and with promises of large accessions to the number, the society bids fair to become one of the prominent institutions of usefulness in this city.

After adjournment the newly elected curators held a meeting with a view to make the necessary arrangements for procuring suitable rooms for the Association as soon as possible, a large number of specimens, books, etc., having already been offered for the museum and library.

ARCHÆOLOGY will be well attended to in northern Europe this year. The "Congress of Archæology and Prehistoric Anthropology" will meet in Stockholm on August 7th, and will continue in session for nine or ten days. The government has asked from the Diet, a grant of 20,000 fr. towards defraying the expenses of the meeting. A magnificent palace has been set apart for the holding of the Congress, and the King and the city will each give grand fêtes. Visitors will be carried over the railroads at half fares, and many excursions will be made. The "Congrès d'archéologie slave" will be held at Kiew from Aug. 14th to Sept 3d. As "Nature" states, the students of prehistoric man will have a good time of it in northern Europe this summer.

THE entomologists and chemists will probably muster in large force at Hartford, in connection with the meeting of the American Association. At the Portland meeting a memorial was presented by the entomologists and endorsed by the Standing Committee, urging the American and Canadian Entomological Societies, to hold annual meetings at the same time and place with the American Association, and they also appointed a committee to bring before the Hartford meeting for discussion, a code of rules

for securing uniformity of nomenclature among American Entomologists. The chemists are proposing the celebration of the Centennial of Chemistry and the indications are that the celebration will take place at Hartford, during the week of the Association meeting, though this is not yet officially determined.

SINCE the publication of our note about the Anderson School of Natural History in the May number, we have learned that in addition to the instructors there named, Dr. W. S. Barnard will give lectures on the Protozoa, Prof. D. S. Jordan will take charge of the department of Marine Botany, and Mr. P. Roetter will give instruction in drawing.

BOOKS RECEIVED.

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Bidrag til Kundskabet om Arterne af Slægten Cyamus Latr. eller Hvallusene. Af Chr. Fr. Lutken. Med 4 Tavler.
 No. 4. *Almindelige Egenskaber ved Systemer af plane Kurver, med Anvendelse til Bestemmelse af Karakteristikerne i de elementære Systemer af fjerde Orden.* Med 5 Tavler. Af H. G. Zeuthen. 1873.
 No. 5. *Thermochemiske Undersøgelser. XII. Undersøgelser over Iltning og Reduktionsmidler.* Ved Julius Thomsen. 1873.
 No. 6. *En Sætning om den Eulerske Faktor svarende til Differentialligningen $M + N \frac{dy}{dx} = 0$, hvor M og N ere algebraiske Funktioner af x og y .* Af P. C. V. Hansen. 1873.
Illustrated Catalogue of the Museum of Comparative Zoology at Harvard College. 4to.
 No. VII. *Revision of the Echini.* Part IV. By A. Agassiz. Cambridge, 1874. With plates.
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Bulletin of the Essex Institute. 8vo. Vol. vi, Nos. 1 and 2. Jan. and Feb., 1874. Salem.
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Report on the Birds of Minnesota. By P. L. Hatch, M.D. 8vo.
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